

Claims

- [c1] 1.A device for controlling a fluid flow, the device comprising:
- at least two fluid flow drivers;
 - a plenum disposed to receive a fluid flow from the at least two drivers, the plenum having a first cross-sectional area proximate the at least two drivers and a second cross-section area at a distance from the at least two drivers, the second cross-sectional area being an exit for the fluid flow; and
 - a baffle disposed within the plenum and having a first edge restrained proximate the first cross-sectional area and a second opposing edge freely disposed proximate the second cross-sectional area;
- wherein the baffle has a surface area responsive to the fluid flow within the plenum to reduce a backflow if one of the at least two drivers is operational and another is non-operational.
- [c2] 2.The device of Claim 1, wherein the baffle further comprises unrestrained side edges disposed between the first and second edges.
- [c3] 3.The device of Claim 1, wherein the first edge of the

baffle is affixed proximate a line between two of the at least two drivers and the second opposing edge is freely disposed proximate the center of the second cross-sectional area.

- [c4] 4.The device of Claim 3, wherein the first edge of the baffle is affixed proximate the center of the first cross-sectional area.
- [c5] 5.The device of Claim 1, wherein the baffle is flexible.
- [c6] 6.The device of Claim 5, wherein the baffle flexes in response to a pressure differential across the baffle such that the plenum shape is optimized regardless of whether one of the at least two drivers is non-operational.
- [c7] 7.The device of Claim 1, wherein in response to one of the at least two drivers being operational and another being non-operational, the baffle moves to close off a part of the plenum corresponding to the non-operational driver.
- [c8] 8.The device of Claim 1, wherein the at least two drivers comprises two fans, and the fluid flow comprises air.
- [c9] 9.The device of Claim 8, wherein the two fans are disposed in a parallel fluid flow arrangement.

- [c10] 10. The device of Claim 9, wherein the two fans are disposed in a same plane.
- [c11] 11. The device of Claim 1, further comprising a tachometer for and in signal communication with each of the at least two drivers;
wherein if one of the at least two drivers is operational and another is non-operational the baffle substantially reduces the backflow toward the non-operational driver such that the associated tachometer registers a non-operational driver.
- [c12] 12. The device of Claim 1, wherein the baffle is disposed in such a way as to divide the plenum in half in response to the at least two drivers and the baffle being at rest.
- [c13] 13. A heat transfer apparatus, comprising:
a heat exchanger; and
a device for providing a fluid flow, the device comprising:
at least two fluid flow drivers;
a plenum disposed to receive a fluid flow from the at least two drivers, the plenum having a first cross-sectional area proximate the at least two drivers and a second cross-section area at a distance from the at least two drivers, the second cross-sectional area being an

exit for the fluid flow; and
a baffle disposed within the plenum and having a first edge restrained proximate the first cross-sectional area and a second opposing edge freely disposed proximate the second cross-sectional area;
wherein the baffle has a surface area responsive to the fluid flow within the plenum to reduce a backflow if one of the at least two drivers is operational and another is non-operational;
wherein the heat exchanger is disposed proximate the exit of the device and in fluid communication with the fluid flow from the device.

[c14] 14.The apparatus of Claim 13, wherein:
the at least two drivers comprises two fans disposed in a parallel fluid flow arrangement; and
the fluid comprises air.

[c15] 15.The apparatus of Claim 13, wherein:
the baffle is flexible;
the baffle flexes in response to a pressure differential across the baffle such that the plenum shape is optimized regardless of whether one of the at least two drivers is non-operational; and
in response to one of the at least two drivers being operational and another being non-operational, the baffle moves to close off a part of the plenum corresponding to

the non-operational driver.

[c16] 16. The apparatus of Claim 13, further comprising a tachometer for and in signal communication with each of the at least two drivers;
wherein if one of the at least two drivers is operational and another is non-operational the baffle substantially reduces the backflow toward the non-operational driver such that the associated tachometer registers a non-operational driver.

[c17] 17. A device for controlling an air flow, the device comprising:
two fans disposed in a parallel air flow arrangement;
a plenum disposed to receive an air flow from the two fans, the plenum having a first cross-sectional area proximate the two fans and a second cross-section area at a distance from the two fans, the second cross-sectional area being an exit for the air flow; and
a baffle disposed within the plenum and having a first edge restrained proximate the first cross-sectional area and a second opposing edge freely disposed proximate the second cross-sectional area;
wherein the baffle flexes in response to a pressure differential across the baffle to reduce a backflow within the plenum if one of the two fans is operational and another is non-operational.

[c18] 18. The device of Claim 17, further comprising a tachometer for and in signal communication with each of the two fans;
wherein if one of the two fans is operational and another is non-operational the baffle substantially reduces the backflow toward the non-operational fan such that the associated tachometer registers a non-operational fan.